

SEQUENCE LISTING

<110> Walke, D. Wade
Wang, Xiaoming
Scoville, John
Turner, C. Alexander Jr.

<120> Novel Human Semaphorin Homologs and Polynucleotides Encoding the Same

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<212> PRT

<213> homo sapiens

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gtcttgccag	cactgccagc	gtcagtccca	ggagtccaca	ctggtccatc	ctgccacccc	3420
caaccatttg	cactacaagg	gcggaggcac	cccgaagaat	gaaaagtaca	cacccatgga	3480
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<210> 18
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 <212> DNA
 <213> homo sapiens

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ctggaggagg	cctcagcaag gctgctggtg ggagcccgag gtgccctgtt ctctctcagt 240
gccaacgaca	taggagatgg ggctcacaaa gagatccact gggaagcctc cccagagatg 300
caaagcaaat	gtcatcaaaa agggaaaaac aaccagacgg agtgctttaa ccatgtgcgg 360
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ctctgtgcag	ccattgatgc tgaggccttc accttgccaa ccagcttcga ggaggggaag 480
gagaagtgtc	cttatgaccc agcccgtggc ttcacaggcc tcatcattga tggaggcctc 540
tacacagcca	ctaggtatga attccggagc attcctgaca tccgccggag ccgccacca 600
cactccctga	gaactgagga gacaccaatg cattgggtca atgggttag 648

<210> 19
 <211> 215
 <212> PRT
 <213> homo sapiens

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Thr Pro Arg Met Thr Ile Pro Tyr Glu Glu Leu Ser Gly Thr Arg His	
35 40 45	
Phe Lys Gly Gln Ala Gln Asn Tyr Ser Thr Leu Leu Leu Glu Glu Ala	
50 55 60	
Ser Ala Arg Leu Leu Val Gly Ala Arg Gly Ala Leu Phe Ser Leu Ser	
65 70 75 80	
Ala Asn Asp Ile Gly Asp Gly Ala His Lys Glu Ile His Trp Glu Ala	
85 90 95	
Ser Pro Glu Met Gln Ser Lys Cys His Gln Lys Gly Lys Asn Asn Gln	
100 105 110	
Thr Glu Cys Phe Asn His Val Arg Phe Leu Gln Arg Leu Asn Ser Thr	
115 120 125	
His Leu Tyr Ala Cys Gly Thr His Ala Phe Gln Pro Leu Cys Ala Ala	
130 135 140	
Ile Asp Ala Glu Ala Phe Thr Leu Pro Thr Ser Phe Glu Glu Gly Lys	
145 150 155 160	
Glu Lys Cys Pro Tyr Asp Pro Ala Arg Gly Phe Thr Gly Leu Ile Ile	

165 170 175
 Asp Gly Gly Leu Tyr Thr Ala Thr Arg Tyr Glu Phe Arg Ser Ile Pro
 180 185 190
 Asp Ile Arg Arg Ser Arg His Pro His Ser Leu Arg Thr Glu Glu Thr
 195 200 205
 Pro Met His Trp Leu Asn Gly
 210 215

<210> 20
 <211> 1491
 <212> DNA
 <213> homo sapiens

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<210> 21
 <211> 496
 <212> PRT
 <213> homo sapiens

<400> 21
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 20 25 30
 Thr Pro Arg Met Thr Ile Pro Tyr Glu Glu Leu Ser Gly Thr Arg His
 35 40 45
 Phe Lys Gly Gln Ala Gln Asn Tyr Ser Thr Leu Leu Leu Glu Glu Ala
 50 55 60
 Ser Ala Arg Leu Leu Val Gly Ala Arg Gly Ala Leu Phe Ser Leu Ser
 65 70 75 80

Ala	Asn	Asp	Ile	Gly	Asp	Gly	Ala	His	Lys	Glu	Ile	His	Trp	Glu	Ala	85	90	95
Ser	Pro	Glu	Met	Gln	Ser	Lys	Cys	His	Gln	Lys	Gly	Lys	Asn	Asn	Gln	100	105	110
Thr	Glu	Cys	Phe	Asn	His	Val	Arg	Phe	Leu	Gln	Arg	Leu	Asn	Ser	Thr	115	120	125
His	Leu	Tyr	Ala	Cys	Gly	Thr	His	Ala	Phe	Gln	Pro	Leu	Cys	Ala	Ala	130	135	140
Ile	Asp	Ala	Glu	Ala	Phe	Thr	Leu	Pro	Thr	Ser	Phe	Glu	Glu	Gly	Lys	145	150	155
Glu	Lys	Cys	Pro	Tyr	Asp	Pro	Ala	Arg	Gly	Phe	Thr	Gly	Leu	Ile	Ile	165	170	175
Asp	Gly	Gly	Leu	Tyr	Thr	Ala	Thr	Arg	Tyr	Glu	Phe	Arg	Ser	Ile	Pro	180	185	190
Asp	Ile	Arg	Arg	Ser	Arg	His	Pro	His	Ser	Leu	Arg	Thr	Glu	Glu	Thr	195	200	205
Pro	Met	His	Trp	Leu	Asn	Asp	Ala	Glu	Phe	Val	Phe	Ser	Val	Leu	Val	210	215	220
Arg	Glu	Ser	Lys	Ala	Ser	Ala	Val	Gly	Asp	Asp	Lys	Val	Tyr	Tyr		225	230	235
Phe	Phe	Thr	Glu	Arg	Ala	Thr	Glu	Glu	Gly	Ser	Gly	Ser	Phe	Thr	Gln	245	250	255
Ser	Arg	Ser	Ser	His	Arg	Val	Ala	Arg	Val	Ala	Arg	Val	Cys	Lys	Gly	260	265	270
Asp	Leu	Gly	Gly	Lys	Lys	Ile	Leu	Gln	Lys	Lys	Trp	Thr	Ser	Phe	Leu	275	280	285
Lys	Ala	Arg	Leu	Ile	Cys	His	Ile	Pro	Leu	Tyr	Glu	Thr	Leu	Arg	Gly	290	295	300
Val	Cys	Ser	Leu	Asp	Ala	Glu	Thr	Ser	Ser	Arg	Thr	His	Phe	Tyr	Ala	305	310	315
Ala	Phe	Thr	Leu	Ser	Thr	Gln	Trp	Lys	Thr	Leu	Glu	Ala	Ser	Ala	Ile	325	330	335
Cys	Arg	Tyr	Asp	Leu	Ala	Glu	Ile	Gln	Ala	Val	Phe	Ala	Gly	Pro	Tyr	340	345	350
Met	Glu	Tyr	Gln	Asp	Gly	Ser	Arg	Arg	Trp	Gly	Arg	Tyr	Glu	Gly	Gly	355	360	365
Val	Pro	Glu	Pro	Arg	Pro	Gly	Ser	Cys	Ile	Thr	Asp	Ser	Leu	Arg	Ser	370	375	380
Gln	Gly	Tyr	Asn	Ser	Ser	Gln	Asp	Leu	Pro	Ser	Leu	Val	Leu	Asp	Phe	385	390	395
Val	Lys	Leu	His	Pro	Leu	Met	Ala	Arg	Pro	Val	Val	Pro	Thr	Arg	Gly	405	410	415
Arg	Pro	Leu	Leu	Leu	Lys	Arg	Asn	Ile	Arg	Tyr	Thr	His	Leu	Thr	Gly	420	425	430
Thr	Pro	Val	Thr	Thr	Pro	Ala	Gly	Pro	Thr	Tyr	Asp	Leu	Leu	Phe	Leu	435	440	445
Gly	Thr	Ala	Asp	Gly	Trp	Ile	His	Lys	Ala	Val	Val	Leu	Gly	Ser	Gly	450	455	460
Met	His	Ile	Ile	Glu	Glu	Thr	Gln	Val	Phe	Arg	Glu	Ser	Gln	Ser	Val	465	470	475
Glu	Asn	Leu	Val	Ile	Ser	Leu	Leu	Gln	Val	Ala	Leu	Leu	Cys	Asp	Pro	485	490	495

<210> 22

<211> 2109

<212> DNA

<213> homo sapiens

<400> 22

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<210> 23

<211> 702

<212> PRT

<213> homo sapiens

<400> 23

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				20				25					30		
Thr	Pro	Arg	Met	Thr	Ile	Pro	Tyr	Glu	Glu	Leu	Ser	Gly	Thr	Arg	His
				35				40					45		
Phe	Lys	Gly	Gln	Ala	Gln	Asn	Tyr	Ser	Thr	Leu	Leu	Leu	Glu	Glu	Ala
	50					55					60				
Ser	Ala	Arg	Leu	Leu	Val	Gly	Ala	Arg	Gly	Ala	Leu	Phe	Ser	Leu	Ser
65				70					75					80	

Ala	Asn	Asp	Ile	Gly	Asp	Gly	Ala	His	Lys	Glu	Ile	His	Trp	Glu	Ala	85	90	95
Ser	Pro	Glu	Met	Gln	Ser	Lys	Cys	His	Gln	Lys	Gly	Lys	Asn	Asn	Gln	100	105	110
Thr	Glu	Cys	Phe	Asn	His	Val	Arg	Phe	Leu	Gln	Arg	Leu	Asn	Ser	Thr	115	120	125
His	Leu	Tyr	Ala	Cys	Gly	Thr	His	Ala	Phe	Gln	Pro	Leu	Cys	Ala	Ala	130	135	140
Ile	Asp	Ala	Glu	Ala	Phe	Thr	Leu	Pro	Thr	Ser	Phe	Glu	Glu	Gly	Lys	145	150	155
Glu	Lys	Cys	Pro	Tyr	Asp	Pro	Ala	Arg	Gly	Phe	Thr	Gly	Leu	Ile	Ile	165	170	175
Asp	Gly	Gly	Leu	Tyr	Thr	Ala	Thr	Arg	Tyr	Glu	Phe	Arg	Ser	Ile	Pro	180	185	190
Asp	Ile	Arg	Arg	Ser	Arg	His	Pro	His	Ser	Leu	Arg	Thr	Glu	Glu	Thr	195	200	205
Pro	Met	His	Trp	Leu	Asn	Asp	Ala	Glu	Phe	Val	Phe	Ser	Val	Leu	Val	210	215	220
Arg	Glu	Ser	Lys	Ala	Ser	Ala	Val	Gly	Asp	Asp	Lys	Val	Tyr	Tyr		225	230	235
Phe	Phe	Thr	Glu	Arg	Ala	Thr	Glu	Glu	Gly	Ser	Gly	Ser	Phe	Thr	Gln	245	250	255
Ser	Arg	Ser	Ser	His	Arg	Val	Ala	Arg	Val	Ala	Arg	Val	Cys	Lys	Gly	260	265	270
Asp	Leu	Gly	Gly	Lys	Lys	Ile	Leu	Gln	Lys	Lys	Trp	Thr	Ser	Phe	Leu	275	280	285
Lys	Ala	Arg	Leu	Ile	Cys	His	Ile	Pro	Leu	Tyr	Glu	Thr	Leu	Arg	Gly	290	295	300
Val	Cys	Ser	Leu	Asp	Ala	Glu	Thr	Ser	Ser	Arg	Thr	His	Phe	Tyr	Ala	305	310	315
Ala	Phe	Thr	Leu	Ser	Thr	Gln	Trp	Lys	Thr	Leu	Glu	Ala	Ser	Ala	Ile	325	330	335
Cys	Arg	Tyr	Asp	Leu	Ala	Glu	Ile	Gln	Ala	Val	Phe	Ala	Gly	Pro	Tyr	340	345	350
Met	Glu	Tyr	Gln	Asp	Gly	Ser	Arg	Arg	Trp	Gly	Arg	Tyr	Glu	Gly	Gly	355	360	365
Val	Pro	Glu	Pro	Arg	Pro	Gly	Ser	Cys	Ile	Thr	Asp	Ser	Leu	Arg	Ser	370	375	380
Gln	Gly	Tyr	Asn	Ser	Ser	Gln	Asp	Leu	Pro	Ser	Leu	Val	Leu	Asp	Phe	385	390	395
Val	Lys	Leu	His	Pro	Leu	Met	Ala	Arg	Pro	Val	Val	Pro	Thr	Arg	Gly	405	410	415
Arg	Pro	Leu	Leu	Leu	Lys	Arg	Asn	Ile	Arg	Tyr	Thr	His	Leu	Thr	Gly	420	425	430
Thr	Pro	Val	Thr	Thr	Pro	Ala	Gly	Pro	Thr	Tyr	Asp	Leu	Leu	Phe	Leu	435	440	445
Gly	Thr	Ala	Asp	Gly	Trp	Ile	His	Lys	Ala	Val	Val	Leu	Gly	Ser	Gly	450	455	460
Met	His	Ile	Ile	Glu	Glu	Thr	Gln	Val	Phe	Arg	Glu	Ser	Gln	Ser	Val	465	470	475
Glu	Asn	Leu	Val	Ile	Ser	Leu	Leu	Gln	His	Ser	Leu	Tyr	Val	Gly	Ala	485	490	495
Pro	Ser	Gly	Val	Ile	Gln	Leu	Pro	Leu	Ser	Ser	Cys	Ser	Arg	Tyr	Arg	500	505	510
Ser	Cys	Tyr	Asp	Cys	Ile	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Gly	Trp	Asp	515	520	525

Pro Gly Thr His Ala Cys Ala Ala Ala Thr Thr Ile Ala Asn Arg Ser
 530 535 540
 Gln Gly Ser Arg Thr Ala Leu Ile Gln Asp Ile Glu Arg Gly Asn Arg
 545 550 555 560
 Gly Cys Glu Ser Ser Arg Asp Thr Gly Arg Ala Leu Gln Val His Met
 565 570 575
 Gly Ser Met Ser Pro Pro Ser Ala Trp Pro Cys Val Leu Asp Gly Pro
 580 585 590
 Glu Thr Arg Gln Val Leu Cys Gln Pro Pro Lys Pro Cys Val His Ser
 595 600 605
 His Ala His Met Glu Glu Cys Leu Ser Ala Gly Leu Gln Cys Pro His
 610 615 620
 Pro His Leu Leu Leu Val His Ser Cys Phe Ile Pro Ala Ser Gly Leu
 625 630 635 640
 Gly Val Pro Ser Gln Leu Pro His Pro Ile Trp Ser Ser Ser Pro Ala
 645 650 655
 Pro Cys Gly Asp Leu Phe Val Lys Ser Leu Gly Thr Gly Gln Pro Gly
 660 665 670
 Glu Val Arg Leu His His Ser Pro Pro Leu Pro Ser Cys Val Ala Leu
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 690 695 700

<210> 24
 <211> 2094
 <212> DNA
 <213> homo sapiens

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Phe Lys Gly Gln Ala Gln Asn Tyr Ser Thr Leu Leu Leu Glu Glu Ala
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Ser Ala Arg Leu Leu Val Gly Ala Arg Gly Ala Leu Phe Ser Leu Ser
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Ala Asn Asp Ile Gly Asp Gly Ala His Lys Glu Ile His Trp Glu Ala
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Glu Lys Cys Pro Tyr Asp Pro Ala Arg Gly Phe Thr Gly Leu Ile Ile
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Asp Gly Gly Leu Tyr Thr Ala Thr Arg Tyr Glu Phe Arg Ser Ile Pro
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Asp Ile Arg Arg Ser Arg His Pro His Ser Leu Arg Thr Glu Glu Thr
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Asp Leu Gly Gly Lys Lys Ile Leu Gln Lys Lys Trp Thr Ser Phe Leu
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Lys Ala Arg Leu Ile Cys His Ile Pro Leu Tyr Glu Thr Leu Arg Gly
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 Phe Lys Gly Gln Ala Gln Asn Tyr Ser Thr Leu Leu Leu Glu Glu Ala
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Thr	Pro	Arg	Met	Thr	Ile	Pro	Tyr	Glu	Glu	Leu	Ser	Gly	Thr	Arg	His
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Phe	Lys	Gly	Gln	Ala	Gln	Asn	Tyr	Ser	Thr	Leu	Leu	Leu	Glu	Glu	Ala
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Ala	Asn	Asp	Ile	Gly	Asp	Gly	Ala	His	Lys	Glu	Ile	His	Trp	Glu	Ala
			85					90					95		
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Thr	Glu	Cys	Phe	Asn	His	Val	Arg	Phe	Leu	Gln	Arg	Leu	Asn	Ser	Thr
	115					120						125			
His	Leu	Tyr	Ala	Cys	Gly	Thr	His	Ala	Phe	Gln	Pro	Leu	Cys	Ala	Ala
	130					135						140			

Ile	Asp	Ala	Glu	Ala	Phe	Thr	Leu	Pro	Thr	Ser	Phe	Glu	Glu	Gly	Lys
145					150					155					160
Glu	Lys	Cys	Pro	Tyr	Asp	Pro	Ala	Arg	Gly	Phe	Thr	Gly	Leu	Ile	Ile
				165					170					175	
Asp	Gly	Gly	Leu	Tyr	Thr	Ala	Thr	Arg	Tyr	Glu	Phe	Arg	Ser	Ile	Pro
			180					185					190		
Asp	Ile	Arg	Arg	Ser	Arg	His	Pro	His	Ser	Leu	Arg	Thr	Glu	Glu	Thr
	195						200					205			
Pro	Met	His	Trp	Leu	Asn	Asp	Ala	Glu	Phe	Val	Phe	Ser	Val	Leu	Val
	210				215						220				
Arg	Glu	Ser	Lys	Ala	Ser	Ala	Val	Gly	Asp	Asp	Asp	Lys	Val	Tyr	Tyr
225				230					235						240
Phe	Phe	Thr	Glu	Arg	Ala	Thr	Glu	Glu	Gly	Ser	Gly	Ser	Phe	Thr	Gln
				245					250					255	
Ser	Arg	Ser	Ser	His	Arg	Val	Ala	Arg	Val	Ala	Arg	Val	Cys	Lys	Gly
			260					265					270		
Asp	Leu	Gly	Gly	Lys	Lys	Ile	Leu	Gln	Lys	Lys	Trp	Thr	Ser	Phe	Leu
	275						280					285			
Lys	Ala	Arg	Leu	Ile	Cys	His	Ile	Pro	Leu	Tyr	Glu	Thr	Leu	Arg	Gly
	290					295					300				
Val	Cys	Ser	Leu	Asp	Ala	Glu	Thr	Ser	Ser	Arg	Thr	His	Phe	Tyr	Ala
305				310						315					320
Ala	Phe	Thr	Leu	Ser	Thr	Gln	Trp	Lys	Thr	Leu	Glu	Ala	Ser	Ala	Ile
				325					330					335	
Cys	Arg	Tyr	Asp	Leu	Ala	Glu	Ile	Gln	Ala	Val	Phe	Ala	Gly	Pro	Tyr
			340					345				350			
Met	Glu	Tyr	Gln	Asp	Gly	Ser	Arg	Arg	Trp	Gly	Arg	Tyr	Glu	Gly	Gly
	355						360					365			
Val	Pro	Glu	Pro	Arg	Pro	Gly	Ser	Cys	Ile	Thr	Asp	Ser	Leu	Arg	Ser
	370					375					380				
Gln	Gly	Tyr	Asn	Ser	Ser	Gln	Asp	Leu	Pro	Ser	Leu	Val	Leu	Asp	Phe
385				390						395					400
Val	Lys	Leu	His	Pro	Leu	Met	Ala	Arg	Pro	Val	Val	Pro	Thr	Arg	Gly
				405					410					415	
Arg	Pro	Leu	Leu	Leu	Lys	Arg	Asn	Ile	Arg	Tyr	Thr	His	Leu	Thr	Gly
			420					425					430		
Thr	Pro	Val	Thr	Thr	Pro	Ala	Gly	Pro	Thr	Tyr	Asp	Leu	Leu	Phe	Leu
			435				440					445			
Gly	Thr	Ala	Asp	Gly	Trp	Ile	His	Lys	Ala	Val	Val	Leu	Gly	Ser	Gly
	450					455					460				
Met	His	Ile	Ile	Glu	Glu	Thr	Gln	Val	Phe	Arg	Glu	Ser	Gln	Ser	Val
465				470						475					480
Glu	Asn	Leu	Val	Ile	Ser	Leu	Leu	Gln	His	Ser	Leu	Tyr	Val	Gly	Ala
				485					490					495	
Pro	Ser	Gly	Val	Ile	Gln	Leu	Pro	Leu	Ser	Ser	Cys	Ser	Arg	Tyr	Arg
			500					505					510		
Ser	Cys	Tyr	Asp	Cys	Ile	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Gly	Trp	Asp
	515						520					525			
Pro	Gly	Thr	His	Ala	Cys	Ala	Ala	Ala	Thr	Thr	Ile	Ala	Asn	Arg	Ser
	530					535						540			
Gln	Gly	Ser	Arg	Thr	Ala	Leu	Ile	Gln	Asp	Ile	Glu	Arg	Gly	Asn	Arg
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Gly	Cys	Glu	Ser	Ser	Arg	Asp	Thr	Gly	Pro	Pro	Pro	Pro	Leu	Lys	Thr
				565					570					575	
Arg	Ser	Val	Leu	Arg	Gly	Asp	Asp	Val	Leu	Leu	Pro	Cys	Asp	Gln	Pro
			580					585					590		

Ser Asn Leu Ala Arg Ala Leu Trp Leu Leu Asn Gly Ser Met Gly Leu
 595 600 605
 Ser Asp Gly Gln Gly Gly Tyr Arg Val Gly Val Asp Gly Leu Leu Val
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 Thr Asp Ala Gln Pro Glu His Ser Gly Asn Tyr Gly Cys Tyr Ala Glu
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 Glu Asn Gly Leu Arg Thr Leu Leu Ala Ser Tyr Ser Leu Thr Val Arg
 645 650 655
 Pro Ala Thr Pro Ala Pro Ala Pro Lys Ala Pro Ala Thr Pro Gly Ala
 660 665 670
 Gln Leu Ala Pro Asp Val Arg Leu Leu Tyr Val Leu Ala Ile Ala Ala
 675 680 685
 Leu Gly Gly Leu Cys Leu Ile Leu Ala Ser Ser Leu Leu Tyr Val Ala
 690 695 700
 Cys Leu Arg Glu Gly Arg Arg Gly Arg Arg Arg Lys Tyr Ser Leu Gly
 705 710 715 720
 Arg Ala Ser Arg Ala Gly Gly Ser Ala Val Gln Leu Gln Thr Val Ser
 725 730 735
 Gly Arg Ala Leu Gln Val His Met Gly Ser Met Ser Pro Pro Ser Ala
 740 745 750
 Trp Pro Cys Val Leu Asp Gly Pro Glu Thr Arg Gln Val Leu Cys Gln
 755 760 765
 Pro Pro Lys Pro Cys Val His Ser His Ala His Met Glu Glu Cys Leu
 770 775 780
 Ser Ala Gly Leu Gln Cys Pro His Pro His Leu Leu Leu Val His Ser
 785 790 795 800
 Cys Phe Ile Pro Ala Ser Gly Leu Gly Val Pro Ser Gln Leu Pro His
 805 810 815
 Pro Ile Trp Ser Ser Ser Pro Ala Pro Cys Gly Asp Leu Phe Val Lys
 820 825 830
 Ser Leu Gly Thr Gly Gln Pro Gly Glu Val Arg Leu His His Ser Pro
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 Trp Ser Phe Ser Arg Val
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<210> 32

<211> 2598

<212> DNA

<213> homo sapiens

<400> 32

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gccaacgaca	taggagatgg	ggctcacaaa	gagatccact	gggaagcctc	cccagagatg	300
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<210> 33
 <211> 865
 <212> PRT
 <213> homo sapiens

<400> 33

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			20					25					30		
Thr	Pro	Arg	Met	Thr	Ile	Pro	Tyr	Glu	Glu	Leu	Ser	Gly	Thr	Arg	His
		35					40					45			
Phe	Lys	Gly	Gln	Ala	Gln	Asn	Tyr	Ser	Thr	Leu	Leu	Leu	Glu	Glu	Ala
	50					55					60				
Ser	Ala	Arg	Leu	Leu	Val	Gly	Ala	Arg	Gly	Ala	Leu	Phe	Ser	Leu	Ser
65					70					75				80	
Ala	Asn	Asp	Ile	Gly	Asp	Gly	Ala	His	Lys	Glu	Ile	His	Trp	Glu	Ala
			85					90						95	
Ser	Pro	Glu	Met	Gln	Ser	Lys	Cys	His	Gln	Lys	Gly	Lys	Asn	Asn	Gln
		100					105						110		
Thr	Glu	Cys	Phe	Asn	His	Val	Arg	Phe	Leu	Gln	Arg	Leu	Asn	Ser	Thr
	115						120					125			
His	Leu	Tyr	Ala	Cys	Gly	Thr	His	Ala	Phe	Gln	Pro	Leu	Cys	Ala	Ala
	130					135						140			

Ile	Asp	Ala	Glu	Ala	Phe	Thr	Leu	Pro	Thr	Ser	Phe	Glu	Glu	Gly	Lys
145					150					155					160
Glu	Lys	Cys	Pro	Tyr	Asp	Pro	Ala	Arg	Gly	Phe	Thr	Gly	Leu	Ile	Ile
				165					170					175	
Asp	Gly	Gly	Leu	Tyr	Thr	Ala	Thr	Arg	Tyr	Glu	Phe	Arg	Ser	Ile	Pro
			180					185					190		
Asp	Ile	Arg	Arg	Ser	Arg	His	Pro	His	Ser	Leu	Arg	Thr	Glu	Glu	Thr
	195						200					205			
Pro	Met	His	Trp	Leu	Asn	Asp	Ala	Glu	Phe	Val	Phe	Ser	Val	Leu	Val
	210					215					220				
Arg	Glu	Ser	Lys	Ala	Ser	Ala	Val	Gly	Asp	Asp	Asp	Lys	Val	Tyr	Tyr
225					230				235						240
Phe	Phe	Thr	Glu	Arg	Ala	Thr	Glu	Glu	Gly	Ser	Gly	Ser	Phe	Thr	Gln
				245					250					255	
Ser	Arg	Ser	Ser	His	Arg	Val	Ala	Arg	Val	Ala	Arg	Val	Cys	Lys	Gly
			260					265					270		
Asp	Leu	Gly	Gly	Lys	Lys	Ile	Leu	Gln	Lys	Lys	Trp	Thr	Ser	Phe	Leu
	275						280					285			
Lys	Ala	Arg	Leu	Ile	Cys	His	Ile	Pro	Leu	Tyr	Glu	Thr	Leu	Arg	Gly
	290					295					300				
Val	Cys	Ser	Leu	Asp	Ala	Glu	Thr	Ser	Ser	Arg	Thr	His	Phe	Tyr	Ala
305					310					315					320
Ala	Phe	Thr	Leu	Ser	Thr	Gln	Trp	Lys	Thr	Leu	Glu	Ala	Ser	Ala	Ile
				325					330					335	
Cys	Arg	Tyr	Asp	Leu	Ala	Glu	Ile	Gln	Ala	Val	Phe	Ala	Gly	Pro	Tyr
			340					345					350		
Met	Glu	Tyr	Gln	Asp	Gly	Ser	Arg	Arg	Trp	Gly	Arg	Tyr	Glu	Gly	Gly
	355						360					365			
Val	Pro	Glu	Pro	Arg	Pro	Gly	Ser	Cys	Ile	Thr	Asp	Ser	Leu	Arg	Ser
	370					375					380				
Gln	Gly	Tyr	Asn	Ser	Ser	Gln	Asp	Leu	Pro	Ser	Leu	Val	Leu	Asp	Phe
385					390					395					400
Val	Lys	Leu	His	Pro	Leu	Met	Ala	Arg	Pro	Val	Val	Pro	Thr	Arg	Gly
				405					410					415	
Arg	Pro	Leu	Leu	Leu	Lys	Arg	Asn	Ile	Arg	Tyr	Thr	His	Leu	Thr	Gly
				420				425					430		
Thr	Pro	Val	Thr	Thr	Pro	Ala	Gly	Pro	Thr	Tyr	Asp	Leu	Leu	Phe	Leu
	435						440					445			
Gly	Thr	Ala	Asp	Gly	Trp	Ile	His	Lys	Ala	Val	Val	Leu	Gly	Ser	Gly
	450					455					460				
Met	His	Ile	Ile	Glu	Glu	Thr	Gln	Val	Phe	Arg	Glu	Ser	Gln	Ser	Val
465					470					475					480
Glu	Asn	Leu	Val	Ile	Ser	Leu	Leu	Gln	His	Ser	Leu	Tyr	Val	Gly	Ala
				485					490					495	
Pro	Ser	Gly	Val	Ile	Gln	Leu	Pro	Leu	Ser	Ser	Cys	Ser	Arg	Tyr	Arg
			500					505					510		
Ser	Cys	Tyr	Asp	Cys	Ile	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Gly	Trp	Asp
	515						520					525			
Pro	Gly	Thr	His	Ala	Cys	Ala	Ala	Ala	Thr	Thr	Ile	Ala	Asn	Arg	Thr
	530					535					540				
Ala	Leu	Ile	Gln	Asp	Ile	Glu	Arg	Gly	Asn	Arg	Gly	Cys	Glu	Ser	Ser
545					550					555					560
Arg	Asp	Thr	Gly	Pro	Pro	Pro	Pro	Leu	Lys	Thr	Arg	Ser	Val	Leu	Arg
				565					570					575	
Gly	Asp	Asp	Val	Leu	Leu	Pro	Cys	Asp	Gln	Pro	Ser	Asn	Leu	Ala	Arg
			580					585					590		

Ala Leu Trp Leu Leu Asn Gly Ser Met Gly Leu Ser Asp Gly Gln Gly
595 600 605
Gly Tyr Arg Val Gly Val Asp Gly Leu Leu Val Thr Asp Ala Gln Pro
610 615 620
Glu His Ser Gly Asn Tyr Gly Cys Tyr Ala Glu Glu Asn Gly Leu Arg
625 630 635 640
Thr Leu Leu Ala Ser Tyr Ser Leu Thr Val Arg Pro Ala Thr Pro Ala
645 650 655
Pro Ala Pro Lys Ala Pro Ala Thr Pro Gly Ala Gln Leu Ala Pro Asp
660 665 670
Val Arg Leu Leu Tyr Val Leu Ala Ile Ala Ala Leu Gly Gly Leu Cys
675 680 685
Leu Ile Leu Ala Ser Ser Leu Leu Tyr Val Ala Cys Leu Arg Glu Gly
690 695 700
Arg Arg Gly Arg Arg Arg Lys Tyr Ser Leu Gly Arg Ala Ser Arg Ala
705 710 715 720
Gly Gly Ser Ala Val Gln Leu Gln Thr Val Ser Gly Arg Ala Leu Gln
725 730 735
Val His Met Gly Ser Met Ser Pro Pro Ser Ala Trp Pro Cys Val Leu
740 745 750
Asp Gly Pro Glu Thr Arg Gln Val Leu Cys Gln Pro Pro Lys Pro Cys
755 760 765
Val His Ser His Ala His Met Glu Glu Cys Leu Ser Ala Gly Leu Gln
770 775 780
Cys Pro His Pro His Leu Leu Leu Val His Ser Cys Phe Ile Pro Ala
785 790 795 800
Ser Gly Leu Gly Val Pro Ser Gln Leu Pro His Pro Ile Trp Ser Ser
805 810 815
Ser Pro Ala Pro Cys Gly Asp Leu Phe Val Lys Ser Leu Gly Thr Gly
820 825 830
Gln Pro Gly Glu Val Arg Leu His His Ser Pro Pro Leu Pro Ser Cys
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Val
865

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<211> 351
<212> DNA
<213> homo sapiens

<400> 34
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ccacactccc tgagaactga ggagacacca atgcattggc tcaatgggta g 351

<210> 35
<211> 116
<212> PRT
<213> homo sapiens

<400> 35

Met	Gln	Ser	Lys	Cys	His	Gln	Lys	Gly	Lys	Asn	Asn	Gln	Thr	Glu	Cys
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			20					25					30		
Ala	Cys	Gly	Thr	His	Ala	Phe	Gln	Pro	Leu	Cys	Ala	Ala	Ile	Asp	Ala
		35					40					45			
Glu	Ala	Phe	Thr	Leu	Pro	Thr	Ser	Phe	Glu	Glu	Gly	Lys	Glu	Lys	Cys
	50					55					60				
Pro	Tyr	Asp	Pro	Ala	Arg	Gly	Phe	Thr	Gly	Leu	Ile	Ile	Asp	Gly	Gly
65					70					75				80	
Leu	Tyr	Thr	Ala	Thr	Arg	Tyr	Glu	Phe	Arg	Ser	Ile	Pro	Asp	Ile	Arg
				85					90					95	
Arg	Ser	Arg	His	Pro	His	Ser	Leu	Arg	Thr	Glu	Glu	Thr	Pro	Met	His
			100					105					110		
Trp	Leu	Asn	Gly												
			115												

<210> 36

<211> 1194

<212> DNA

<213> homo sapiens

<400> 36

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cccctctgtg	cagccattga	tgctgaggcc	ttcaccttgc	caaccagctt	cgaggagggg	180
aaggagaagt	gtccttatga	cccagcccg	ggcttcacag	gcctcatcat	tgatggaggg	240
ctctacacag	ccactaggta	tgaattccgg	agcattccctg	acatccgccg	gagccgccac	300
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gtcctgggct	ctgggatgca	cattattgaa	gagacacaag	tggttcaggga	gtcccagctc	1140
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<210> 37

<211> 397

<212> PRT

<213> homo sapiens

<400> 37

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Phe	Asn	His	Val	Arg	Phe	Leu	Gln	Arg	Leu	Asn	Ser	Thr	His	Leu	Tyr
			20					25					30		
Ala	Cys	Gly	Thr	His	Ala	Phe	Gln	Pro	Leu	Cys	Ala	Ala	Ile	Asp	Ala
		35					40					45			

Glu Ala Phe Thr Leu Pro Thr Ser Phe Glu Glu Gly Lys Glu Lys Cys
 50 55 60
 Pro Tyr Asp Pro Ala Arg Gly Phe Thr Gly Leu Ile Ile Asp Gly Gly
 65 70 75 80
 Leu Tyr Thr Ala Thr Arg Tyr Glu Phe Arg Ser Ile Pro Asp Ile Arg
 85 90 95
 Arg Ser Arg His Pro His Ser Leu Arg Thr Glu Glu Thr Pro Met His
 100 105 110
 Trp Leu Asn Asp Ala Glu Phe Val Phe Ser Val Leu Val Arg Glu Ser
 115 120 125
 Lys Ala Ser Ala Val Gly Asp Asp Asp Lys Val Tyr Tyr Phe Phe Thr
 130 135 140
 Glu Arg Ala Thr Glu Glu Gly Ser Gly Ser Phe Thr Gln Ser Arg Ser
 145 150 155 160
 Ser His Arg Val Ala Arg Val Ala Arg Val Cys Lys Gly Asp Leu Gly
 165 170 175
 Gly Lys Lys Ile Leu Gln Lys Lys Trp Thr Ser Phe Leu Lys Ala Arg
 180 185 190
 Leu Ile Cys His Ile Pro Leu Tyr Glu Thr Leu Arg Gly Val Cys Ser
 195 200 205
 Leu Asp Ala Glu Thr Ser Ser Arg Thr His Phe Tyr Ala Ala Phe Thr
 210 215 220
 Leu Ser Thr Gln Trp Lys Thr Leu Glu Ala Ser Ala Ile Cys Arg Tyr
 225 230 235 240
 Asp Leu Ala Glu Ile Gln Ala Val Phe Ala Gly Pro Tyr Met Glu Tyr
 245 250 255
 Gln Asp Gly Ser Arg Arg Trp Gly Arg Tyr Glu Gly Gly Val Pro Glu
 260 265 270
 Pro Arg Pro Gly Ser Cys Ile Thr Asp Ser Leu Arg Ser Gln Gly Tyr
 275 280 285
 Asn Ser Ser Gln Asp Leu Pro Ser Leu Val Leu Asp Phe Val Lys Leu
 290 295 300
 His Pro Leu Met Ala Arg Pro Val Val Pro Thr Arg Gly Arg Pro Leu
 305 310 315 320
 Leu Leu Lys Arg Asn Ile Arg Tyr Thr His Leu Thr Gly Thr Pro Val
 325 330 335
 Thr Thr Pro Ala Gly Pro Thr Tyr Asp Leu Leu Phe Leu Gly Thr Ala
 340 345 350
 Asp Gly Trp Ile His Lys Ala Val Leu Gly Ser Gly Met His Ile
 355 360 365
 Ile Glu Glu Thr Gln Val Phe Arg Glu Ser Gln Ser Val Glu Asn Leu
 370 375 380
 Val Ile Ser Leu Leu Gln Val Ala Leu Leu Cys Asp Pro
 385 390 395

<210> 38
 <211> 1812
 <212> DNA
 <213> homo sapiens

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 aaggagaagt gtccttatga cccagcccgt ggcttcacag gcctcatcat tgatggaggc 240
 ctctacacag ccactaggta tgaattccgg agcattcctg acatccgccg gagccgccac 300

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gcagccttca cgctgagcac acagtggaag accctggagg cctcagccat ctgccgtat 720
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<210> 39

<211> 603

<212> PRT

<213> homo sapiens

<400> 39

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20          25          30
Ala Cys Gly Thr His Ala Phe Gln Pro Leu Cys Ala Ala Ile Asp Ala
35          40          45
Glu Ala Phe Thr Leu Pro Thr Ser Phe Glu Glu Gly Lys Glu Lys Cys
50          55          60
Pro Tyr Asp Pro Ala Arg Gly Phe Thr Gly Leu Ile Ile Asp Gly Gly
65          70          75          80
Leu Tyr Thr Ala Thr Arg Tyr Glu Phe Arg Ser Ile Pro Asp Ile Arg
85          90          95
Arg Ser Arg His Pro His Ser Leu Arg Thr Glu Glu Thr Pro Met His
100         105         110
Trp Leu Asn Asp Ala Glu Phe Val Phe Ser Val Leu Val Arg Glu Ser
115         120         125
Lys Ala Ser Ala Val Gly Asp Asp Asp Lys Val Tyr Tyr Phe Phe Thr
130         135         140
Glu Arg Ala Thr Glu Glu Gly Ser Gly Ser Phe Thr Gln Ser Arg Ser
145         150         155         160
Ser His Arg Val Ala Arg Val Ala Arg Val Cys Lys Gly Asp Leu Gly
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Gly Lys Lys Ile Leu Gln Lys Lys Trp Thr Ser Phe Leu Lys Ala Arg

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<212> DNA

<213> homo sapiens

<400> 40

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<210> 41

<211> 598

<212> PRT

<213> homo sapiens

<400> 41

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      20             25             30
Ala Cys Gly Thr His Ala Phe Gln Pro Leu Cys Ala Ala Ile Asp Ala
      35             40             45
Glu Ala Phe Thr Leu Pro Thr Ser Phe Glu Glu Gly Lys Glu Lys Cys
      50             55             60
Pro Tyr Asp Pro Ala Arg Gly Phe Thr Gly Leu Ile Ile Asp Gly Gly
      65             70             75             80
Leu Tyr Thr Ala Thr Arg Tyr Glu Phe Arg Ser Ile Pro Asp Ile Arg
      85             90             95
Arg Ser Arg His Pro His Ser Leu Arg Thr Glu Glu Thr Pro Met His
      100            105            110
Trp Leu Asn Asp Ala Glu Phe Val Phe Ser Val Leu Val Arg Glu Ser
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 Trp Ser Phe Ser Arg Val
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<210> 42
 <211> 2235
 <212> DNA
 <213> homo sapiens

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 aaggagaagt gtccttatga cccagcccgt ggcttcacag gcctcatcat tgatggaggc 240
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 gagagctctg tctga 2235

<210> 43
 <211> 744
 <212> PRT
 <213> homo sapiens

<400> 43

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			20					25					30		
Ala	Cys	Gly	Thr	His	Ala	Phe	Gln	Pro	Leu	Cys	Ala	Ala	Ile	Asp	Ala
		35					40					45			
Glu	Ala	Phe	Thr	Leu	Pro	Thr	Ser	Phe	Glu	Glu	Gly	Lys	Glu	Lys	Cys
	50					55					60				
Pro	Tyr	Asp	Pro	Ala	Arg	Gly	Phe	Thr	Gly	Leu	Ile	Ile	Asp	Gly	Gly
65					70					75				80	
Leu	Tyr	Thr	Ala	Thr	Arg	Tyr	Glu	Phe	Arg	Ser	Ile	Pro	Asp	Ile	Arg
				85					90					95	
Arg	Ser	Arg	His	Pro	His	Ser	Leu	Arg	Thr	Glu	Glu	Thr	Pro	Met	His
			100					105					110		
Trp	Leu	Asn	Asp	Ala	Glu	Phe	Val	Phe	Ser	Val	Leu	Val	Arg	Glu	Ser
		115					120					125			
Lys	Ala	Ser	Ala	Val	Gly	Asp	Asp	Asp	Lys	Val	Tyr	Tyr	Phe	Phe	Thr
	130					135					140				
Glu	Arg	Ala	Thr	Glu	Glu	Gly	Ser	Gly	Ser	Phe	Thr	Gln	Ser	Arg	Ser
145					150					155				160	
Ser	His	Arg	Val	Ala	Arg	Val	Ala	Arg	Val	Cys	Lys	Gly	Asp	Leu	Gly
				165					170					175	
Gly	Lys	Lys	Ile	Leu	Gln	Lys	Lys	Trp	Thr	Ser	Phe	Leu	Lys	Ala	Arg
			180					185					190		
Leu	Ile	Cys	His	Ile	Pro	Leu	Tyr	Glu	Thr	Leu	Arg	Gly	Val	Cys	Ser
		195					200					205			
Leu	Asp	Ala	Glu	Thr	Ser	Ser	Arg	Thr	His	Phe	Tyr	Ala	Ala	Phe	Thr
	210						215				220				
Leu	Ser	Thr	Gln	Trp	Lys	Thr	Leu	Glu	Ala	Ser	Ala	Ile	Cys	Arg	Tyr
225					230					235				240	
Asp	Leu	Ala	Glu	Ile	Gln	Ala	Val	Phe	Ala	Gly	Pro	Tyr	Met	Glu	Tyr
				245					250					255	
Gln	Asp	Gly	Ser	Arg	Arg	Trp	Gly	Arg	Tyr	Glu	Gly	Gly	Val	Pro	Glu
			260					265					270		
Pro	Arg	Pro	Gly	Ser	Cys	Ile	Thr	Asp	Ser	Leu	Arg	Ser	Gln	Gly	Tyr
		275					280					285			
Asn	Ser	Ser	Gln	Asp	Leu	Pro	Ser	Leu	Val	Leu	Asp	Phe	Val	Lys	Leu
		290				295					300				
His	Pro	Leu	Met	Ala	Arg	Pro	Val	Val	Pro	Thr	Arg	Gly	Arg	Pro	Leu
305					310					315				320	
Leu	Leu	Lys	Arg	Asn	Ile	Arg	Tyr	Thr	His	Leu	Thr	Gly	Thr	Pro	Val
				325					330					335	
Thr	Thr	Pro	Ala	Gly	Pro	Thr	Tyr	Asp	Leu	Leu	Phe	Leu	Gly	Thr	Ala
			340					345					350		
Asp	Gly	Trp	Ile	His	Lys	Ala	Val	Val	Leu	Gly	Ser	Gly	Met	His	Ile
		355					360					365			
Ile	Glu	Glu	Thr	Gln	Val	Phe	Arg	Glu	Ser	Gln	Ser	Val	Glu	Asn	Leu
	370					375					380				
Val	Ile	Ser	Leu	Leu	Gln	His	Ser	Leu	Tyr	Val	Gly	Ala	Pro	Ser	Gly
385					390					395				400	
Val	Ile	Gln	Leu	Pro	Leu	Ser	Ser	Cys	Ser	Arg	Tyr	Arg	Ser	Cys	Tyr
			405						410					415	
Asp	Cys	Ile	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Gly	Trp	Asp	Pro	Gly	Thr
		420						425				430			
His	Ala	Cys	Ala	Ala	Ala	Thr	Thr	Ile	Ala	Asn	Arg	Ser	Gln	Gly	Ser

435	440	445
Arg Thr Ala Leu Ile Gln Asp	Ile Glu Arg Gly Asn Arg Gly Cys Glu	
450	455	460
Ser Ser Arg Asp Thr Gly Pro Pro Pro Pro Leu Lys Thr Arg Ser Val		
465	470	475
Leu Arg Gly Asp Asp Val Leu Leu Pro Cys Asp Gln Pro Ser Asn Leu		
485	490	495
Ala Arg Ala Leu Trp Leu Leu Asn Gly Ser Met Gly Leu Ser Asp Gly		
500	505	510
Gln Gly Gly Tyr Arg Val Gly Val Asp Gly Leu Leu Val Thr Asp Ala		
515	520	525
Gln Pro Glu His Ser Gly Asn Tyr Gly Cys Tyr Ala Glu Glu Asn Gly		
530	535	540
Leu Arg Thr Leu Leu Ala Ser Tyr Ser Leu Thr Val Arg Pro Ala Thr		
545	550	555
Pro Ala Pro Ala Pro Lys Ala Pro Ala Thr Pro Gly Ala Gln Leu Ala		
565	570	575
Pro Asp Val Arg Leu Leu Tyr Val Leu Ala Ile Ala Ala Leu Gly Gly		
580	585	590
Leu Cys Leu Ile Leu Ala Ser Ser Leu Leu Tyr Val Ala Cys Leu Arg		
595	600	605
Glu Gly Arg Arg Gly Arg Arg Lys Tyr Ser Leu Gly Arg Ala Ser		
610	615	620
Arg Ala Gly Gly Ser Ala Val Gln Leu Gln Thr Val Ser Gly Gln Cys		
625	630	635
Pro Gly Glu Glu Asp Glu Gly Asp Asp Glu Gly Ala Gly Gly Leu Glu		
645	650	655
Gly Ser Cys Leu Gln Ile Ile Pro Gly Glu Gly Ala Pro Ala Pro Pro		
660	665	670
Pro Pro Pro Pro Pro Pro Pro Pro Ala Glu Leu Thr Asn Gly Leu Val		
675	680	685
Ala Leu Pro Ser Arg Leu Arg Arg Met Asn Gly Asn Ser Tyr Val Leu		
690	695	700
Leu Arg Gln Ser Asn Asn Gly Val Pro Ala Gly Pro Cys Ser Phe Ala		
705	710	715
Glu Glu Leu Ser Arg Ile Leu Glu Lys Arg Lys His Thr Gln Leu Val		
725	730	735
Glu Gln Leu Asp Glu Ser Ser Val		
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<210> 44

<211> 2220

<212> DNA

<213> homo sapiens

<400> 44

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Ala Val Gln Leu Gln Thr Val Ser Gly Gln Cys Pro Gly Glu Glu Asp
625 630 635 640
Glu Gly Asp Asp Glu Gly Ala Gly Gly Leu Glu Gly Ser Cys Leu Gln
645 650 655
Ile Ile Pro Gly Glu Gly Ala Pro Ala Pro Pro Pro Pro Pro Pro
660 665 670
Pro Pro Pro Ala Glu Leu Thr Asn Gly Leu Val Ala Leu Pro Ser Arg
675 680 685
Leu Arg Arg Met Asn Gly Asn Ser Tyr Val Leu Leu Arg Gln Ser Asn
690 695 700
Asn Gly Val Pro Ala Gly Pro Cys Ser Phe Ala Glu Glu Leu Ser Arg
705 710 715 720
Ile Leu Glu Lys Arg Lys His Thr Gln Leu Val Glu Gln Leu Asp Glu
725 730 735
Ser Ser Val

<210> 46
<211> 2316
<212> DNA
<213> homo sapiens

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<210> 47
 <211> 771
 <212> PRT
 <213> homo sapiens

<400> 47

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 <213> homo sapiens

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 <212> PRT
 <213> homo sapiens

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Val	Ile	Gln	Leu	Pro	Leu	Ser	Ser	Cys	Ser	Arg	Tyr	Arg	Ser	Cys	Tyr		
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Gln	Asp	Ile	Glu	Arg	Gly	Asn	Arg	Gly	Cys	Glu	Ser	Ser	Arg	Asp	Thr		
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Lys	Ala	Pro	Ala	Thr	Pro	Gly	Ala	Gln	Leu	Ala	Pro	Asp	Val	Arg	Leu	
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Glu	Val	Arg	Leu	His	His	Ser	Pro	Pro	Leu	Pro	Ser	Cys	Val	Ala	Leu	
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